

REMARKS

I. **Restriction Requirement**

The application was previously subject to a Restriction Requirement. To expedite prosecution, applicants have canceled claims 16-18 and claims 21-31. However, applicants reserve the right to pursue these claims in subsequent applications. As a result of this amendment, the pending claims include claims 5-15, 19, and 20. Claims 1-4 were previously canceled.

II. **Rejection of claims under 35 U.S.C. §112, second paragraph**

Claim 5 has been amended. Applicants believe that there is no longer lack of antecedent basis, and respectfully requests that the rejection of this claim under 35 U.S.C. §112 be withdrawn.

With regards to claim 12, the Examiner is understandably confused by the original claim language that recites "allows the moving window at the data sending unit to be advanced beyond the sequence number of the lost frame to a maximum point of N-1." While admittedly confusing when taken at face value, the statement in the claim is actually technically correct. This is because, as described in the specification, the moving window is set to advance until it reaches a maximum sequence number. Once it reaches this point, it continues to advance by restarting the numbering (e.g., at 1) for the next series of frames (until it reaches the maximum point of N-1). To limit the confusion, applicants have amended claim 12 to recite that the moving window is "configured to advance from a minimum sequence number to a maximum sequence number for a first series of frames, after which the moving window restarts at the minimum sequence number in a next series of frames" and that "use of the second channel allows the moving window at the data sending unit to be advanced beyond the sequence number of the lost frame until it restarts, and then to a maximum point of N-1 prior to receiving an acknowledgement of receipt of the lost frame from the data receiving unit."

III. Rejection of claims under 35 U.S.C. § 102

The Examiner rejects claims 5, 6, 8-15, 19, and 20 under 35 U.S.C. § 102(b) over U.S. Patent No. 5,930,233 (Kanerva). Applicants respectfully traverse these rejections.

With applicants' techniques, the entire sliding window at the sender device is allowed to advance even without receiving acknowledgements for frames at the back edge of the sliding window. For example, claim 5 recites "allow[ing] the sliding window at the data sending unit to be advanced beyond the sequence number of the lost frame prior to receiving an acknowledgement of receipt of the lost frame from the data receiving unit;" claim 11 recites "allow[ing] the moving window at the data sending unit to be advanced beyond the sequence number of the lost frame until it restarts, and then to a maximum point of $N-1$ prior to receiving an acknowledgement of receipt of the lost frame from the data receiving unit;" and claim 19 recites "allows the sliding window at the data sending unit to be advanced beyond the sequence number of the lost frame prior to receiving an acknowledgement of receipt of the lost frame from the receiver." This is not disclosed in any of the applied references. Rather, the disclosed references disclose a more traditional sliding window scheme where the sliding window corresponds to a range of sequential frames/packets that can be sent without receiving acknowledgement for previously sent frames. For example, as with traditional sliding windows, the sliding window in Kanerva represents a set block of frames that are buffered (meaning that if one of the frames turns out to be missing, it can easily be resent provided that its sequence number falls within the current range of the sliding window). In contrast, applicants' techniques allow the entire sliding window at the sender device (e.g., the buffer itself) to advance even without receiving acknowledgements for frames at the back edge of the sliding window.

Applicants' technology is implemented, at least in part, by allowing lost frames to be resent using a second channel (e.g., established by the recipient device once it notices that a frame has been missed in the sequence). Thus, all the independent claims (5, 11, and 19) disclose a second channel used for resending missing or lost frames. It is the use

of this second channel that allows the moving window to be advanced well beyond the sequence number of the lost frame prior to receiving an acknowledgement of receipt of the lost frame from the receiver. In contrast, Kanerva discloses a traditional use of a sliding window protocol in conjunction with a single channel. The number of frames that can be sent without acknowledgement is equal to the size of the sliding window, and the sliding window itself cannot be advanced without acknowledgement for frames corresponding to the back edge of the sliding window. So, applicants' techniques not only have the buffer of the sliding window itself (as with standard sliding windows), but also a sliding window that can itself advance, at least in some cases, without receiving certain acknowledgements.

It appears that the Examiner compares applicants' claimed second channel to Kanerva's disclosed "multi-channel data connection" and/or "simultaneous and parallel traffic channels." But this is an unfair comparison because there is nothing in Kanerva discussing that these channels are used in the same way that applicants use the claimed second channel (for sending lost frames). While applicants are not separately arguing the rejection of claim 7 under 35 U.S.C. § 103 (maintaining instead, that the claim from which it depends allowable), the secondary reference (Leermakers) that the Examiner relies on to reject dependent claim 7 under 35 U.S.C. § 103 also fails to disclose this aspect of applicants' technology. While Leermakers does include a claim (claim 10) that discloses retransmitting "missing/corrupted data over a return channel," this is clearly not enough to make up for all the claim features that are missing from the disclosures in Kanerva and Leermakers. Moreover, Leermakers is not analogous art because it does not deal with the transmission of information of frames using sequence numbers. Instead, it deals more generally with a broadcast system (e.g., satellite, or terrestrial air or cable).

Accordingly, applicants respectfully request that the rejection of claims 5, 11, and 19 (and their dependents) be withdrawn.

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Reply to Office Action of August 18, 2005

Docket No.: 364388016US1

In view of the above amendment, applicants believe the pending application is in condition for allowance. If the Examiner has any questions, he is encouraged to contact applicants' representative at 206-359-3925.

Applicants believe that a one-month extension of time fee is due with this response. However, if an additional fee is due, please charge our Deposit Account No. 50-0665, under Order No. 364388016US1 from which the undersigned is authorized to draw.

Dated: December 19, 2005

Respectfully submitted,

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